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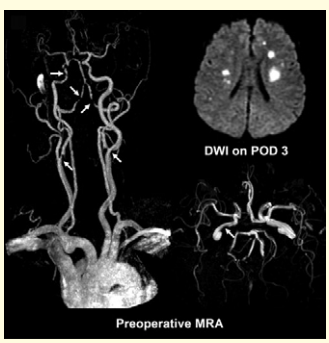

Lee and colleagues studied the mechanisms of stroke after coronary artery bypass grafting (CABG) by performing pre-operative magnetic resonance angiography (MRA) on over 1,300 patients referred for CABG. Post-CABG strokes (within 14 days) were classified as atherosclerotic (attributable to pre-existing atherosclerosis) or other. Stroke occurred in 2.4% of patients, and the extent and severity of intracranial and extracranial cerebral atherosclerosis was independently associated with stroke. These findings suggest that pre-operative evaluation of the cerebral arteries may better predict the risk of post-CABG stroke than evaluation of the carotid arteries.

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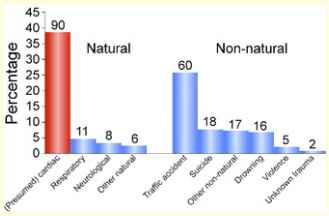

HEART RHYTHM DISORDERS

Incidence, Causes, and Outcomes of Out-of-Hospital Cardiac Arrest in Children **1822**

Abdennasser Bardai, Jocelyn Berdowski, Christian van der Werf, Marieke T. Blom, Manon Ceelen, Irene M. van Langen, Jan G. P. Tijssen, Arthur A. M. Wilde, Rudolph W. Koster, Hanno L. Tan

Bardai and colleagues sought to determine the incidence of pediatric out-of-hospital cardiac arrest (OHCA). All deaths of persons <21 years of age in 1 province of the Netherlands were registered. OHCA caused 24% of deaths, with an incidence of 9.0 per 100,000 pediatric person-years. Natural causes of OHCA accounted for 49% of cases, with cardiac causes in 39% of these cases. A total of 24% of resuscitated patients survived, 85% with a neurologically-intact outcome. OHCA accounts for a significant proportion of pediatric mortality.

Editorial Comment: Sumeet S. Chugh, 1829

HYPERTENSION

Higher Muscular Strength Is Associated With Better Outcomes in Men With Hypertension **1831**

Enrique G. Artero, Duck-chul Lee, Jonatan R. Ruiz, Xuemei Sui, Francisco B. Ortega, Timothy S. Church, Carl J. Lavie, Manuel J. Castillo, Steven N. Blair

Artero and colleagues studied the impact of muscular strength on mortality in men with hypertension. A total of 1,506 hypertensive men age ≥40 years had their muscular strength quantified by combining 1 repetition maximum measures for leg and bench press, and cardiorespiratory fitness (CRF) assessed with a treadmill test. Age-adjusted death rates per 10,000 person-years were 82 for the weakest tertile compared with 52 for the strongest. This association persisted after adjustment for CRF.

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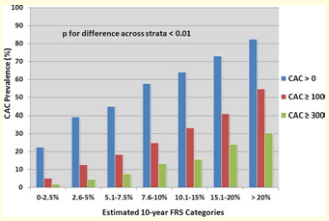

PRE-CLINICAL RESEARCH

CARDIAC IMAGING AND RISK

Significant Correlations Between Coronary Calcium and Framingham Risk Score 1838

Tochi M. Okwuosa, Philip Greenland, Hongyan Ning, Kiang Liu, Diane E. Bild, Gregory L. Burke, John Eng, Donald M. Lloyd-Jones

Both the 10-year Framingham risk score (FRS) and coronary artery calcium (CAC) are predictors of coronary heart disease (CHD); however, it is unclear how frequently high CAC scores are found in subjects with low FRS. In over 5,000 MESA (Multi-Ethnic Study of Atherosclerosis) participants, the prevalence and amount of CAC increased with higher FRS. CAC ≥300 occurred in 1.7% and 4.4% of those with FRS 0% to 2.5% and 2.6% to 5%, respectively, and was more frequent in those with higher FRS. This study suggests that in individuals with an FRS ≤5%, the probability of identifying persons with high CAC is low.

PRE-CLINICAL RESEARCH

AC6 Improves Calcium Uptake and LV Function in Aged Hearts 1846

Tong Tang, H. Kirk Hammond, Amy Firth, Yuan Yang, Mei Hua Gao, Jason X.-J. Yuan, N. Chin Lai

Aging hearts exhibit impaired beta-adrenergic receptor signaling and left ventricular (LV) dysfunction. Tang and colleagues studied whether the activation of adenylyl cyclase 6 (AC6) expression in cardiac myocytes improves calcium uptake and LV function in aging mice. AC6 expression was associated with increased LV contractility, rate of pressure development, and the slope of LV end-systolic pressure-volume relationship. These results indicate that activation of cardiac AC6 expression improves impaired function of aged hearts through improved calcium uptake.